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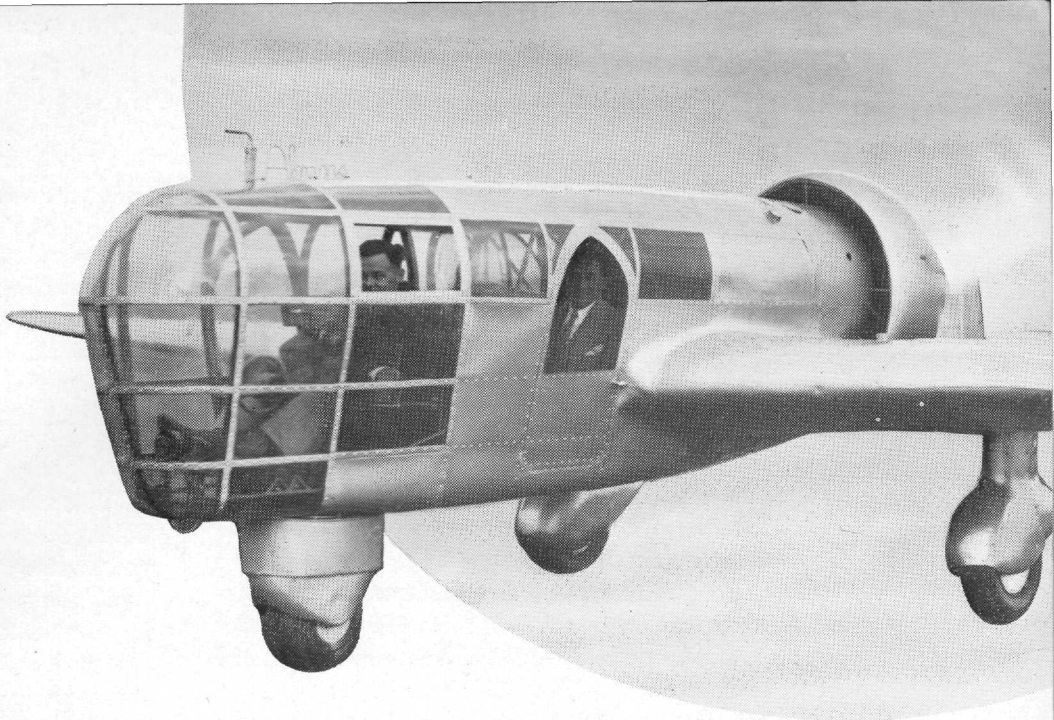
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# "EXPLORER"

By PAUL GUSTAFSON



—Courtesy of Popular Aviation.

IN the space of ten years aerial photography has grown from a small branch of the Air Corps with military possibilities to a highly specialized industry with aspects of both civil and military importance.

Aerial photography is used mostly for the production of small scale topographic maps. It is a much faster and cheaper process than land surveying, and is sufficiently accurate for most purposes.

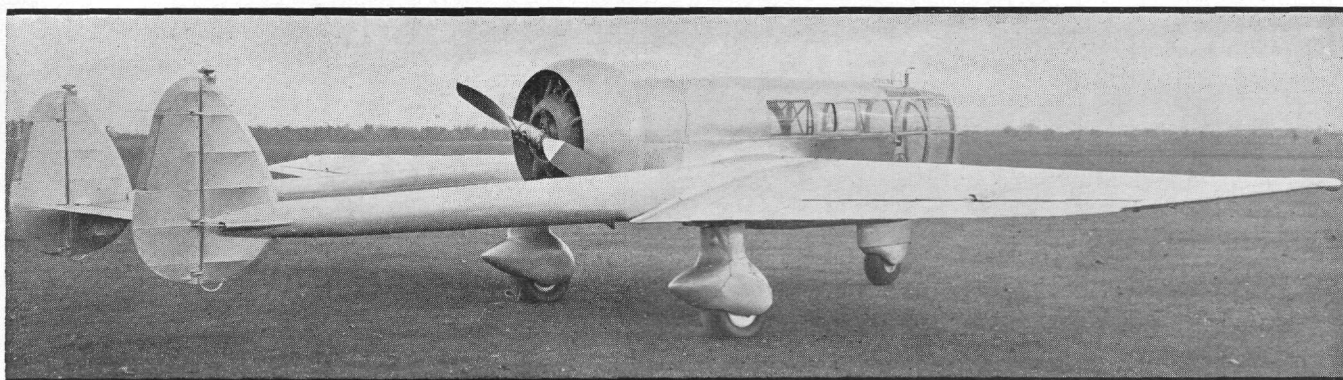
The usual procedure in making a map of an area by means of photography is to traverse the area with parallel flights, taking pictures having a specified overlap both parallel and normal to the direction of flight. Since all of the photographs should have approximately the same scale, the airplane must be able to maintain a constant elevation above the ground. It should be capable of flying at great altitudes in order to increase the accuracy of the photographs and cover larger areas. Moreover it should have a high rate of climb and a fast cruising speed, to decrease the time of operations; and excellent stability, since a small tilt of the camera at the time of exposure throws an appreciable error into the photograph.

Special photographic equipment has been developed to increase the scope of the work. Wide angle lenses and multiple-lens cameras have increased the

area covered by each photograph. Film, sensitive to infra-red light, has enabled the camera to pierce haze at high altitudes. Only one airplane, however, has been built expressly for the purpose of aerial photography.

This ship is the Abrams "Explorer," built by the Abrams Air Craft Corp. of Lansing, Mich. Talbert Abrams, president of the concern, has been active in aerial survey work for a number of years, and, realizing the need for such an airplane, undertook to build it himself.

The "Explorer" is a pusher monoplane with exceptionally clean lines. Its construction is of the latest all-metal type, and, with the exception of the rudder, it is completely metal covered. The engine is a Curtiss-Wright radial fitted with an NACA cowl. The cantilever wing is swept back, affording good visibility downward to the rear. The tail assembly is mounted on twin booms leading from the wings, and resembles those used on the Gyro "Crusader" and Hammond "Y." In keeping with standard pusher design, the landing gear is of the "tricycle" type, consisting of a streamlined housing and wheel at the nose and a wheel under each wing at its juncture with the tail booms. The front of the cabin is completely enclosed with



—Courtesy of Aviation.

glass, offering unlimited visibility for the pilot in all directions except backward.

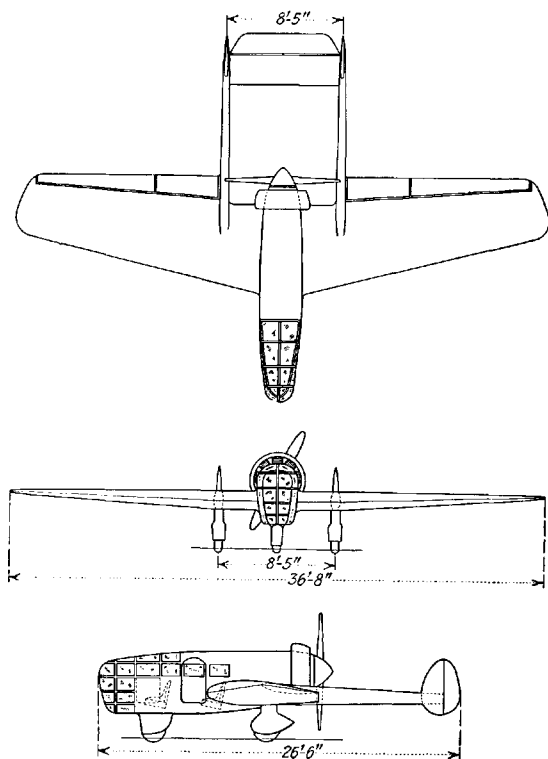
The cabin is fitted with two seats in tandem arrangement, for pilot and photographer. Both positions are equipped with flight controls and have within reach and view a full set of instruments and engine controls. Vertical photographs can be taken through an opening in the floor of the cabin, over which a special camera mount is fastened. Pictures to the front can be taken by opening an inner door. The windows, doors, and other openings are sealed in for supercharging the cabin at high altitudes.

The first "Explorer," which underwent tests last November, was powered with a 330 horsepower Wright engine, but is designed to accommodate a 450 horsepower engine, which would improve its performance considerably. Later models are planned to take engines of up to 1,000 horsepower.

By building the first airplane for use in aerial photography above any other purpose, the Abrams Air Craft Corp. is several steps ahead of other builders who might be planning entry into the field.

#### SPECIFICATIONS

Weight empty	1790 lbs.
Useful load	1410 lbs.
Maximum speed at sea level	185 m.p.h.
Maximum speed at 10,000 ft.	200 m.p.h.
Cruising speed	165 m.p.h.
Landing speed	66 m.p.h.
Rate of climb	1800 ft. per min.
Service ceiling	21,000 ft.
Cruising range	1400 miles



—Courtesy of Aviation.